

PYTHAGORAS

Frequently Asked Questions

(When viewing this PDF file, you can always hit Ctrl-F to search for specific words).

Control Panel

Can you provide a brief description of the different coordinate system annotations such as NEZ, HDZ, etc.?

NEZ : North, East, Elevation

HDZ : Horizontal Angle, Horizontal Distance, Elevation

HVD : Horizontal Angle, Vertical Angle, Horizontal Distance

HVS : Horizontal Angle, Vertical Angle, Slope Distance

When I move my cursor over a line, the control panel shows the Length of the line. By hitting Tab, I can show the slope, the bearing, etc. for this line. How can I make e.g. bearing, the "default" setting, so I don't always have to Tab to see the bearing of a line?

Hit Shift-Tab while you have the bearing shown. Now, every time you place your cursor on a line, it will automatically show the bearing.

Points

I am placing points on the screen, but I don't see any point numbers?

If you want to see the point numbers, do View - Display Options, and check the little box next to "Show point numbers."

How can I have Pythagoras start numbering points at a specific starting number?

Defaults - Next Point number.

I would like to place a bunch of points on the screen, one right after the other, each with specific coordinates. How can I do this easily?

Select the Point tool-icon.

Click anywhere on the screen.

Enter the exact coordinates of this point in the control panel

Click OK (or hit Enter).

This places one point on the screen. If you want to avoid that you always need to click on the screen to place another point, hit the Caps-Lock button on your keyboard. Now, every time you have placed a point on the screen, it will ask you the coordinates of the next point that you want to place. Thus, this allows you to enter points one right after the other.

How do I change the elevation of a point?

Hold down CTRL while you double-click the point. This will allow you to change the Z-value of a point.

How can I move a point?

Select the point

Edit - Move

Click (and hold the mouse button down!) the point, and drag it to the new location. You can confirm the new position, by entering the final coordinates.

How do I change the elevation of multiple points simultaneously?

Select all the points for which you want to change the elevation. Then select Format - Operation - Adjust elevation.

How can I change a point number that is assigned to a point?

Double Click the point. This will pop up a window that allows you to change the point number, along with a bunch of other properties of this point (the point shape, color, layer, etc.)

I used View - Display options to show point numbers. The point numbers don't always appear exactly where I want them to, so I would like to move them around. But I can't select the point numbers to change their location or their style. Why not?

When you turn "View point numbers" on, the point numbers shown are for information purposes only. They are not meant to be printed like this. If you want to place point numbers next to points with the intent to print them out, do the following :

- Select the point numbers

- Format - Operation - Annotation - Point number

This will add point numbers to the drawing. These point numbers are actual text objects that can be moved around, and you can change their properties (by selecting Format)

I have selected A, B, C instead of point numbers (1,2,3) as my point numbers in Defaults-Preferences. When I try to set a next point number, it does not allow me to enter any alpha characters.

You need to enter the equivalent point number in numeric. E.g. A=1, B=2, Z=26, AA=27, etc.

I am trying to change the color of a point that is represented as a specific symbol, but it does not seem to work.

Different elements in your symbol probably don't have the same color. If all elements in a symbol don't have the same color, you cannot change the color of the symbol. If you want to be able to change the color of a symbol, you need to make sure that all elements of a symbol have the same color.

How do I make a point invisible?

Select the point. Then do Format - Point Style - Hidden.

A tiny little point will still appear, in order for you to be able to identify the point, but it will not be printed out.

Note : You could also place this point in a layer and then make the whole layer invisible.

Is there a default description for points (called Comments in Pythagoras) or must I enter this as a separate action?

No, there is no default description. A comment (or description) can be specified for a point, in either of the following ways :

1. By double clicking on the point : a window will pop up in which you can enter a comment.
2. By importing data from the data collector. The code entered in the data collector for each point will automatically be placed in the comment field.
3. By selecting a number of points simultaneously. Then do Format - Operation - Change comment, to change the comment for all these points simultaneously.
4. By using "User Defaults" (Defaults - Defaults - User Default Manager) : points created while a certain User Default is active can receive a specific comment.

Lines

Can I draw a line without points?

No, a line always connects two points. If you draw a line and its end points do not yet exist, Pythagoras will automatically create the two end points.

Note : This also implies that if you move the point, the line will move along with it.

How do I draw a line that remains parallel to my coordinate system?

Hold down the CTRL key while you are drawing the line. This will only allow the line to be drawn either parallel to the N-axis or parallel to the E-axis.

I am drawing a line, but want to place the end-point of my line outside my currently visible screen area. The screen does not scroll. How can I place the end point of the line?

Simply use the zoom in or out tool. Even when you have already placed the first point of the line, you can zoom in or out wherever you want, before you place the second endpoint of the line.

How can I see the bearing of a line?

Place the cursor on the line. The control panel will show the length of the line. Hit the Tab key and it will show the slope of the line. If you keep hitting Tab, it will show the Different in height between two endpoints (dZ), Bearing (B) and Gradient (%).

I want to draw a set of connecting lines without having to always re-specify the starting point of the line.

Hold down the Shift-key while you click the end point of the line. Automatically, a new line will start at this point.

How do I draw arrows at the end of a line?

Defaults - Line Arrows, turns arrows for *new* lines on or off. When drawing a line, arrows will be created for both end-points.

If you want to suppress the arrow, simply hold down the shift-key when you are creating the point where you don't want an arrow to appear.

If your line already exists, and you want to place an arrow at either end of this existing line: Select the line and the point, then select Format - Line arrows - On.

I want to place an arrow at the end of an existing line. I selected the line, but when I click Format, the option "Line Arrows" is greyed out.

If you want to place an arrow at the end of a line, you need to select the line as well as the point. So, click the line, then hold down the shift key and click the point. Now both the line and the point will be selected. The Format - Line Arrows option will now be available.

How do I draw an arc?

Start drawing a line. Hit the space bar. The line will be converted into an arc.

How do I draw a curved road?

Start drawing a line, hit the space bar. This will make an arc out of it. When you confirm the end point of the arc, hold the shift-key down. This will start a new arc that is tangential to the end point of the previous arc, allowing you to create a curved road made up of a number of sequential arcs.

I'd like to draw a line, starting at the center point of an existing line or arc. How can I easily find the center point of this line.

While drawing the starting point of the line, hold down the number 2-key. This indicates that you want to locate the point that defines the $\frac{1}{2}$ point of the line. As you move your mouse close to that point, the cursor will change to $1/n$. You have just located the point.

The same method can be used to locate one third (hold down the 3), one fourth (hold down the 4), etc.

Coordinate Systems

What is the "Local" coordinate system?

This is the coordinate system that appears when you start any new drawing. The center of the screen is the origin of this coordinate system. This coordinate system is used by Pythagoras to have a point of reference for every object that you place on the screen (points, lines, ...), before you create your own coordinate system.

How do I create a new (user) coordinate system?

Select the CS (for coordinate system) toolbar icon (it's the 4th over, 5th down).

Now click on the point that represents the origin of the coordinate system (if that point does not yet exist, you need to create it first).

Next, click on a point that represents "North" or "Reference" angle of zero.

There you go, your coordinate system has been created.

If you click on the coordinate system display icon (the icon in the top right of the toolbar), the coordinate system that you just created will show up on the screen.

Why would I want to create a User Coordinate Systems?

Say you want to draw detail points measured from several station positions. You would create a coordinate system with the station position as the origin of the coordinate system, and the back sight as your "North" or reference position. Using this coordinate system, all coordinates will be shown in reference to that station point.

If you select HDZ (instead of NEZ) in the control panel, all coordinates will be expressed in Horizontal angle, Distance, and Elevation. If you now want to add a measured detail point with the following coordinates : Horizontal Angle 60 degrees 15 minutes, 0 seconds, Distance 100 feet, and an elevation of 5 feet, you would do the following. Select the "point" tool. Then, click anywhere on the screen to place a point, and enter the above coordinates directly into the control panel, before you confirm the point position. Your point will be placed at that exact position.

Another reason for creating a coordinate system is when you want to create a stakeout list, where all points (stakes) are in reference to a particular origin and reference direction.

Can I create a coordinate system without points?

No, you must first have at least the origin-point on the screen

When I create a coordinate system, the name of this coordinate system is made of a combination of the two point numbers that I clicked to create the coordinate system. Can I rename this coordinate system?

No.

Can I have a coordinate system with the origin at e.g. 5000,5000?

No, the origin of any coordinate system is always 0,0. But obviously, you can create points at coordinates 5000,5000.

How do I create a coordinate system that is parallel to an existing coordinate system, but with the origin offset.

Select the CS-tool icon.

Hold down the CTRL-key while clicking on the origin of the new coordinate system. This will create a coordinate system (called "Temporary") that is parallel to the coordinate system that was selected at the time that you created this new coordinate system. It will simply be offset by the distance between the origins of the two coordinate systems.

Can I have more than one "Temporary" coordinate system?

Yes and No. You can have multiple coordinate systems (whether you use them temporarily or not). However, if you create a coordinate system by holding down the Ctrl-key and clicking the origin of the coordinate system, Pythagoras creates a coordinate system called "Temporary". You can only have one of this type of coordinate system (called "Temporary").

I created a coordinate system, but now I want to delete it. How do I delete it?

Make sure you have the appropriate coordinate system selected, then select Edit - Delete Coordinate System.

What is a Global coordinate system?

In Pythagoras, a Global coordinate system is a term used to describe the coordinate system that replaces the Local coordinate system, after you have transformed the coordinates of the Local coordinate system into new coordinates in order to match the coordinates of another drawing (e.g. a State Plane coordinate system).

Polygons

Can I just start creating a polygon?

Only if the objects making up the polygon are already drawn. So, if you want to create a polygon, you first need to create the objects that make up a polygon. Then you can select these objects as being part of the polygon.

I am creating a polygon, but one leg of my polygon is an arc. If I click the beginning and end points of the arc, it simply draws a straight line between the two points of the arc. I would like the polygon to follow the arc.

When you are going around the polygon, click on the first point of the arc, then click on the arc itself, then click on the end point of the arc. This will make the polygon follow the arc.

I have created a Polygon, but unless I select it, I do not see anything.

A polygon is not visible, unless you specifically make it visible e.g. by filling it with a specific pattern or color. If you want to fill the polygon with a pattern, select the polygon, then select Format - Polygon Pattern.

I created a polygon. Then I selected it and did Format - Color - Red, to color it. It stays white.

The Pattern of your polygon is most likely set to "none". In order to make a color visible, you need to select a pattern other than "none". Select the polygon, then select Format - Polygon Pattern - and select the pattern.

When I create a polygon, I need to click every point along the way. Is there a faster way to create a polygon?

When creating a polygon, if you click the starting point of a polygon, then double-click the first line (or arc) that departs from this starting point, Pythagoras will automatically search for all connecting lines and draw the polygon all the way back to the starting point. This is certainly faster than clicking all points along the way.

One side note : if, along the path of the polygon, Pythagoras encounters a "split in the road" (two lines depart in different directions from a point along the path of the Polygon), you will need to tell Pythagoras which direction to continue, before Pythagoras can complete the polygon.

I have drawn a polygon and want to calculate the area of the polygon. However, there is an area inside the polygon (e.g. a pond) that I would like to exclude from the area calculation. How can I exclude this pond-area?

When you are creating the polygon, instead of simply going around the exterior of the polygon, before you close the polygon, go to the inside object (in this case the pond), create a polygon around this object, and re-exit at the same point as where you came in. Then continue to complete your polygon. The polygon you have now created, will exclude the inside pond-area.

I would like a table printed of all polygons, each with its area. How do I do this?

First select all polygons. Then use Format - Operation - Polygon list. This will create a list of polygon on the bottom right corner of the page (in page coordinates). The "comment" field of each polygon will be used to identify every polygon. If the comment fields of the polygons has not been filled out, only the areas will show up.

I am drawing a polygon with a polygon in it, and I am coloring both polygons. The inside polygon seems to remain black. What am I doing wrong?

First, make sure the inside polygon is set to a higher display level than the outside one (Select the Polygon, then Format - Display level)

Second, make your inside polygon opaque (Select the polygon, then Format - Polygon - Opaque - Yes).

Layers

I am trying to create a new layer (using Defaults - Layer), but the "new" button is greyed out.

You first need to type a new layer name in the input field, before the "new" button will be available.

What do the 3 columns (V, P and S) in the Layer dialog box stand for?

- V : Do you want the layer to be Visible or not.
- P : if SET, the layer is protected. Some operations will not be possible at all, other operations (e.g. changing attributes) will give you a warning that the layer is protected.
- S : if SET, Pythagoras will not snap to the objects in the layer. In fact these objects behave like wall paper.

I am trying to make a layer invisible, using View - Display Options, but it doesn't let me un-check the "V" (Visible) column for the layer that I am trying to make invisible.

You cannot make a layer invisible if you are viewing this layer. Thus, if you want to make a layer invisible, make sure that the layer you have selected in the control panel is a different layer.

I am trying to set a layer visible between two scales, by clicking the setup button in the Layer window. I entered the scales in the From and To fields, but it doesn't seem to work.

Remember that you need to specify the layer in the format e.g. 1/10,000 (not 10,000).

I just changed the scale factor to make my layer visible. But after I changed it, my layer is still not visible.

Try refreshing the screen by zooming in and zooming out again.

What's the fastest way to make a layer visible?

Simply select it from the Control panel. This will make it visible (it will also change the setting of View - Display Options - to Visible for this layer).

I would like to turn a number of layers on and off (visible or not visible) from time to time, without having to click each layer individually. How can I accomplish this?

Make a Group that contains all layers that you want to turn visible simultaneously (Defaults - Layers - Groups). Then use View - Display Options to make specific groups of layers visible.

I seem to only have access to one layer any more. I can't even go back to my layer called Field Data.

Verify whether you are in User Default mode (Default - User Default). If you are in any other User default, other than "none", and you specified a layer for this User Default, it will only allow you to work in one layer.
-> Set the user default to None. This will give you access to the other layers again.

How do I delete a layer?

You can only delete a layer that does not have any objects in it. Therefore, if you want to delete a layer, you must first remove all objects in this layer.

To delete all objects in a layer, use Edit - Find - All objects - In layer - Specify the layer.

This will select all objects in this layer. -> Edit - Clear will delete all these objects.

To remove the layer, select Defaults - Layer -> Then click the Delete button.

Miscellaneous

I want to show both Bearing and Distance, but when I select Tools - Annotation - Bearing, then click on a line, then Tools - Annotation - Slope distance, then click on the same line, it places Bearing and distance on top of one another. How can I avoid this?

Currently, there is no way to place both Bearing and Distance using only one mouse click. So, what you do is the following. First, place the Slope on the line, as described above. Then select the text, then select Format - Text - Vertical Alignment - Top aligned (*). This will place the Slope measurement below the line.

Now you can place the Bearing, as described above. Bearing will be above the line, and slope will be below the line.

PS : You can do the same thing, but use Horizontal Alignment - Right Aligned and Left Aligned, if you want Bearing and length to appear next to each other.

(*) You can also do this for multiple lines simultaneously : you can select all text objects simultaneously (keep down the shift key while clicking the text objects), or use the Edit - Find function. Then select Format - Text - Vertical Alignment - Top aligned.

My Format menu is all greyed out. I can't select anything.

You first need to select an object (a point, a line, or whatever), before you can change the format. Pythagoras is smart like that. It will not give you access to menu options that are not relevant to the action you are trying to perform. This avoids that you unintentionally perform an action that you didn't mean to.

What does Opaque mean?

Opaque is the opposite of "transparent". Thus, Opaque means "non-transparent", or "non-see-through".

When I click on a point to select it, and then click on another point to select it also, the first point gets de-selected. How do I select multiple points?

There are several ways to select multiple objects.

1. Using the selection tool (the one with the arrow in it) : you can simply click and drag over the screen. When you release the mouse button, all objects within the rectangle will be selected simultaneously.
2. Hold down the shift key while you are selecting individual objects. This will keep on adding objects to your selection.
3. Use the option Edit-Select or Edit-Find.

I changed the scale of my drawing in order to match a new printer, but now my text is out of proportion. How can I make the text in my drawing scale accordingly?

- Before you change the printer, write down the scale factor of the original drawing, you will need it later.
- Then do File - Page Setup - Printer to change the printer
- > The scale factor will have changed. The text might be changed a little.
- Select the text
- Format - Scale -> Use a scale factor that equals the original scale divided by the new scale, e.g. 60%
- > This will scale the text accordingly.

I exported my drawing to DXF format, but it only exported all objects that are in Local coordinates. It did not include any objects that are in Page coordinates.

You first need to move all objects from Page coordinates to Local coordinates.

Use File - Adapt - Local->Page.

I have a large drawing, but I only want to print part of the drawing. How do I do this?

There are several ways :

1. You can use Tools - Cut Off - Outside or Inside to simply clip out a part of the drawing and print it out. Just make sure to save the drawing under another name, otherwise you will permanently lose everything you clipped.
2. The second method is by specifying the area that you want to print. Here's how you do this. Switch from Local to Page coordinates. Draw a polygon that represents the area that you want to print out (if points for this polygon do not yet exist,

you will need to create them first). Select the polygon. Then do File - Page Setup - Set Print area. Now, if you print, it will only print what's included inside the polygon.

(To turn off the print area, do File - Page setup - Clear Print area).

When I draw a circle with a certain radius, it draws the circle, but I would also like the center point of the circle to be created.

When you confirm the radius of the circle, simply hold down the Ctrl key. This will also create a point at the center of the circle.

I like the feature Edit - Group, to group objects. Can an object belong to more than one group?

No

From time to time, objects remain on the screen, even though I just deleted them.

Sometimes, this is due to the screen-redraw. Simply zoom out and back in again, to redraw your screen, and check whether the object has been deleted.

I just created a point that falls way outside my page boundaries. Instead of scrolling way up, to try to find that point, how can I see that it was actually created.

Select File - Page Setup - Hide Page. This will show the complete image, whether it falls inside the page area or not. Note : if the page was already hidden, first select File - Page Setup - Show Page, then File - Page Setup - Hide Page. This will re-fresh the screen.

I would like *all* my objects to fall within my page boundaries. How do I do that?

Use File - Select Print area (if this menu item is greyed out, you first need to show your page boundaries by doing File - Page Setup - Show page).

Click the "Fit on Page" button. This will adjust the scale of your drawing, so it fits on the page.

Click OK.

I placed a measurement on a line using Tools - Dimension. It placed the measurement in the center of the line. I would like to have this measurement on other place.

Click the text object that represents the measurement and drag it wherever you want.

Or, double click the text object. This will pop up a window that allows you to align it differently.

What is the tool "Path" used for?

It can be used to do several things. It is used to calculate the length of a sequence of lines and arcs. It is also used to obtain a cross- or longitudinal section along the path. Finally, it is also used to construct parallel lines/arcs to a path.

I created a path, but it is not visible. How do I make it visible?

You make it visible by clicking the snapping point of the path.

In order to find the snapping point (which is roughly in the mid-section of the path), keep the X-key down and move the mouse.

While you move the mouse, the midpoint of the path will show up.

I have multiple objects on top of one another, a point, a line, a polygon. I want them to appear in certain order on top of one another. How do I do this?

Use Format - Display level to set the display level of each of these objects. The object with the higher display level will be shown on top.

The display level is used to e.g. show a house on level 1, whereas the lot will be given level 0.

Another use of the display level is for covering partial areas of raster maps. Define a white opaque polygon. This will act like a white piece of paper on top of the raster map.

I want to show the whole page on the screen, without having to zoom in exactly.

Use View - Fit in Window.

Another quick way to do this is to simply hit the "-" key (this is a shortcut)

Is there a way to turn snapping off?

Overall, no. However, you can turn snapping off for a specific layer.

Use Defaults - Layer -> Click the "S" column for the layer. Now snapping will be turned off for this layer. This layer will now behave like wall paper.

I am trying to import a comma delimited file, but it does not work.

Pythagoras only supports space delimited or tab delimited files. It does not support comma delimited files.

I am using File - Select print area. There is a preview button, but when I click it, it doesn't seem to do anything. What is supposed to happen?

Clicking the Preview button shows the changes that you made while you were in Page Setup mode. If you didn't make any changes (e.g. move the page around, or rotate the page), clicking the Preview button will not result in anything.

I just drew a Grid on the screen, using Calculations - Grid. How do I get rid of it?

The grid has been placed in a separate layer, called Grid. You can make it invisible using View - Display options - Then unclick the X-mark next to the layer called Grid.

I am creating a symbol. I created a hotspot, but I made a mistake. I now want to de-select this hotspot. How do I do that?

Select the point, then Format - Point Style - Hidden or Cross or whatever.